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Notes on the species of CALLIDRYAS found within the United States.

BY W. H. EDWARDS.

Until Mr. A. G. Butler, in his "Lepidoptera Exotica," London, 1874, monographed this group, figuring nearly or quite all the known species, and that in both sexes, the confusion was extreme, and no apology was necessary on the part of other recent authors for any errors they might have fallen into. Now there is no excuse for error. Mr. Butler had all the resources of the British Museum collection and library at command, not to speak of the many other British collections, and his authority is sufficient to settle any doubtful questions in this direction.

Following the best light I could find, I had given in my Synopsis (Vol. i, Butterflies of North America, 1868-1872), four species as belonging to our fauna.

1. ARGANTE, Fabr., Syst. Ent. p. 470.

♂ *Hersilia*, Cramer, pl. 173.

♀ *Cipris*, Cramer, pl. 69.

♀ *Cnidia*, Godart, Enc. Meth. ix, p. 93.

Hab.—Texas; Florida.

2. CIPRIS, Fabr., Ent. Syst. iii, 1, 212.

Hab.—New Mexico.

3. EUBULE, Linn., Syst. Nat. ii, p. 764. Abbot, Ins. Ga. pl. 5.
Bois. and Lec. pl. 24.

Var. *Sennae*, Linn., Syst. Nat. ii, p. 764.

Hab.—Southern States, etc.

4. MARCELLINA, Cramer, pl. 163.

♂ *Eubule*, Bois. and Lec. pl. 24

Mr. Scudder in a paper entitled "Remarks on the old genus *Callidryas*," Vol. xvii, Proc. Bost. Soc. Nat. Hist. 1874-5, followed Mr. Butler, and gave the North American species thus:

1. AGARITHE,

2. EUBULE,

3. SENNAE,

4. CIPRIS, on authority of W. H. Edwards' Synopsis, etc.

In my Catalogue 1877, following Mr. Butler, I gave

1. EUBULE,
2. SENNAE,
3. AGARITHE,
4. PHILEA,

striking out *Cipris* as more than doubtful.

Mr. Strecker, Syn. Cat. etc., 1878, with no reference to Butler's, gives :

1. ARGANTE, Fabr., Syst. Ent. p. 470.
♂ *Hersilia*, Cramer, 2, pl. 173.
2. EUBULE, Linn., Syn. *Marcellina*.
? Var. *Sennæ*.
3. CIPRIS, Fabr., Ent. Syst. 3, p. 212.
Neocypris, Hübner, Saml.
Bracteolata, Butler, Scudder, Proc. Zool. Soc. 458.

Finally in the Synoptic Table of Lepidoptera, printed in Bulletin of the Brooklyn Entomological Society, Vol. i, No. 9, January, 1879, we have :

1. EUBULE, Linn.
♀ var. *Sennæ*, Linn.
2. ARGANTE, Fabr.
3. PHILEA, Linn., evidently without knowledge of Butler or Scudder.

Recent authors therefore differing so much, I think it well to present again Mr. Butler's view of these species, as his volume is not accessible to many Lepidopterists.

1. ARGANTE, Fabr., Syst. Ent. p. 470, *is not a North American species*, but the species found within the United States and taken for *Argante* is AGARITHE, Boisduval. The most northern locality given by Butler for *Argante* is Oaxaca; then Honduras, and Central and South America. *Argante* is characterized by a "zigzag discal series" on under side, etc., and Butler refers to Swainson's Illustrations for a Plate on which he says both sexes are correctly figured. This is in First Series, Swain. Illus. Vol. i, pl. 52. The "zigzag band" is shown to be composed of two oblique red-brown stripes nearly parallel to each other, one under the other, but unconnected. Mr. Butler's figures show the same peculiarity. I know of no North American orange species which has this sort of stripe.

2. AGARITHE, Bdv., Spec. Gen. i, 623; described by Butler, thus :

"Male.—Very similar to *Argante*, but paler, the front wings more produced at apex; below differs from *Argante* in the oblique band of front wings which is continuous and not angulated as in *Argante*.

Female.—Above generally golden-orange, sometimes pinky-white; front wings with diffused orange patch over end of cell; a brown spot at end of cell; apex an oblique series of spots between the nervures on disk, and a marginal series terminating nervures black-brown; hind wings with costal and internal ones rosy-whitish; three or four blackish spots terminating the nervures on outer margin; wings below golden-yellow, irrorated with ferruginous atoms; front wings with base and apex red; a bluish subapical nebula; a geminate pearly brown-zoned spot at end of cell; *an oblique discal brown band* and three spots between subcostal branches; hind wings with a red spot at base; a transverse streak crossing cell from costal nervure, a subcostal spot near base, and a semi-circular series of markings, brown; two silver-centred ring-spots at end of cell.

Localities.:—"Brazil; Yucatan; Texas; (white var.). ♂ var. spotless below, Santa Martha."

I have had several males and females from South Florida during the past season. The oblique red-brown band is distinct on under side of fore wings of the male. The color of under side is bright yellow. One female remains in my collection of these Florida examples. The upper side is paler orange, the ground at end of cell deep orange. The oblique band is obsolescent on upper side but distinct below. And the other marks agree with Mr. Butler's description.

I have a ♀ from Kansas, of which the upper side is ochre-yellow rather than orange, and the oblique band is broad and complete on both sides. Another from Texas is yellow-white on upper side, or sordid-white, the band heavy on both sides. Another ♀, Texas, is still whiter, same bands on both sides.

3. SENNAE. Butler gives the synonymy thus:

♀ *Sennae*, Linn., Syst. Nat. ii, 764, = *Eubule*, Cramer, pl. 120, figs. E, F.

♂ *Marcellina*, Cramer, pl. 163, figs. A, C.

♀ var. *Pomona*, Donovan, Ins. Ino. Cat. *Orbis* ♀ Poey, Cent. Lep. Cuba, pl. 1.

♀ albino *Hyperice*, Sepp. Sur. Vbind. i, pl. 19.

"*Male*.—Generally smaller than *Eubule*; the coloring of the under surface deeper, and the markings much better defined.

Female.—Above deep golden-yellow, sometimes inclining to orange, or dirty white; front wings with internally dentated, well defined dark-brown margin beginning at second-third of costa and terminating at anal angle; a large black disco-cellular spot, and a subapical series of angulated lunules between the nervures; also a point of the same color between median branches; hind wings with rosy margin; a submarginal series of fine large geminate dark brown spots at termination of nervures; abdominal and basal areas pale rosy; under surface of wings paler; the margin with band and spots as above, but deep rosy; front wings with large geminate silver-centred ring-spot at end of cell, *and a zigzag series of irregular characters on disk*, all rosy-brown; costa rosy, hind wings with two

silver-centred ring-spots placed obliquely at end of cell on a brownish streak, and encircled by a series of bracket-shaped characters beginning at base and continuing in the form of a heart through disk, all rosy brown.

Localities :—"Brazil; Central America; Mexico; Texas; Jamaica; Hayti," etc.

"The *Phæbis Eubule* of Hübner, Samml. ex. Schmett. ii, pl. 31, 1805, represents the two common forms of *C. Sennae*; we have both examples from Honduras." Butler, pages 59, 60, plate 23, figs. 1-4.

Until recently I have been unacquainted with the ♂ of this species, though I have seen many ♀'s, and have for years had several in my collection, from Texas and elsewhere. But in collection of Mr. Henry Edwards, at New York, I saw two males alike, one of which he had taken at Mazatlan, in copulation with a ♀ like my Texas examples. The other ♂ Mr. Edwards gave me. It is so much like *Eubule*, common form, that it would be overlooked and no doubt has constantly been, as the female is reported from many localities in the United States. This ♂ is less green, more yellow than *Eubule* ♂. The upper side is immaculate, the marginal areas being nearly just as in *Eubule*. But the under side has a reddish hue upon the yellow; the zigzag streaks on fore wings and other markings described by Mr. Butler are distinct. So all those on hind wings, "the series of bracket-shaped characters beginning at base and continuing in the form of a heart through disk" being clearly defined.

A ♀ sent me by Mr. Scudder, labelled "*C. Orbis*, Poey, Florida Keys," measures 2.6 inches. Color white with a yellow tint, but not sordid. Hind margin of primaries edged by a narrow brown band made up of a confluent series of long spots crenate on inner side; costal margin same dark brown two-thirds towards base; a large brown discal spot with an orange streak on arc; on the subcostal interspaces are three little brown spots or clusters of scales in line near costa, and this row bends round apex; secondaries edged with double-convex brown spots which fill the interspaces. Under side has the margins rosy-brown, the "zigzag bands" distinct and the "bracket-shaped" spots, etc.

Another ♀ from Texas, is same size as last named, but sordid white. Marks same.

I have also a small ♀ from Indian River, measuring but 2.1 inch. Color of the ♂ described from Mayatlan. Below same red tint as that and marked just like it. I had taken this for a dwarfed *Eubule*, but clearly it is *Sennae*.

4. *EUBULE*. Mr. Butler gives the species thus:

♂ *Pap. Eubule*, Linn., Syst. Nat. 2, p. 743.

"*Male*.—Wings above sulphur-yellow, unspotted, with narrow marginal mealy band; below sulphur-yellow; front wings with paler internal area; an irregular rosy-centred ring-spot at end of cell, and a deeply bisinuate series of eight brown spots beyond it; hind wings with two silver-centred spots at end of cell, encircled by an irregular discal series of ten or eleven red-brown scale-spots, sometimes obsolete.

Female.—Wings above sulphur-yellow, with orange margin, the nervures terminating in black spots; front wings with large black disco-cellular spots, and sometimes with an indistinct series of discal spots towards apex; below golden-yellow, the margins deeper colored; front wings with a large geminate silver-centred ring-spot; the discal spots as in ♂ but redder; hind wings with two silver-centred ring-spots placed obliquely upon a squamose rusty band at end of cell, and encircled by a discal series of irregular reddish markings, several reddish spots at base."

This species is common over the South and West, and is sometimes taken on Long Island, or further up the coast. It is occasional at Coalburgh, West Virginia; and in season of 1880 there were an unusual number seen there.

5. *HERSILIA*. This species Mr. Strecker gives as synonymous with *Argante*, Fab.; Mr. Butler as follows:

Hersilia, Cramer, 2, pl. 173.

♂ *Larra*, Fabr., Ent. Syst. Suppl. p. 428.

♀ *Cipris*, Cramer, (nec Fab.), 2, pl. 99.

♀ *Cipris*, Hübner Samml., 2, pl. 131.

Localities:—"Brazil; Cayenne; Nicaragua;" etc., but no further North; and it is added: "This very beautiful species was for many years confounded with *Argante*, the two males being very similar," etc. As it is not found in the United States, it is not necessary to add further.

6. *PHILEA*.

♂ *P. Philea*, Linn., Syst. Nat. 2, 764.

♀ *P. Aricye*, Cramer, 1, pl. 94.

♂ *Manecipium*, *fugax Argante*, Hübner Samml., 1, pl. 145.

"*Male*.—Wings above light sulphur-yellow; front wings with the margin very slenderly blackish, expanded into points at the termination of the nervures; an elongate oblique orange patch crossing discoidal cell; hind wings with external area including centre of disk light orange, the mealy marginal border slightly paler; below golden-yellow; front wings with internal area broadly sulphur-yellow; two irregular silver-centred brown disco-cellular spots and a biangulate series of discal brown spots, most distinct towards costa; hind wings with two brown encircled silver spots at end of cell, and a circular discal series of irregular brown markings completely surrounding them.

Female.—Wings above golden or ochraceous yellow; front wings becoming gradually deeper colored towards outer margin, where it is slightly reddish; a conspicuous spot at end of cell; a triangulate series of nine discal spots, the apex and six marginal spots dark brown, hind wings with external area reddish-orange

diffused internally and interrupted by yellow nervures; costal and abdominal areas whitish; five conspicuous brown marginal spots; below dull opaque rosy-orange, the marginal spots of upper surface replaced by squamose silvery ones; front wings with pale internal area; a collection of closely packed silver-centred brown spots at end of cell; discal brown spots less distinct than above; hind wings with two silver spots encircled with brown at end of cell, and a circular series of irregular brown markings completely surrounding them.

Localities :—"Brazil; Bogota; Honduras; Mexico."

In American Entomologist, 2, p. 340, 1870, we read: "A rare capture in Illinois; H. S. Bontell, Evanstown, Illinois. The large sulphur or citron-yellow butterfly with a large quadrate orange patch near the middle of the front wings, and with the posterior part of the hind wings also more or less orange is *Callidryas Philea*, Linn., the largest species of the genus. Its habitat is usually given as Brazil, St. Domingo and Cuba, and the fact of your capturing it in northern Illinois is interesting, and its occurrence there very exceptional," etc.

In my Catalogue I give Texas as occasional habitat, but on whose authority I do not remember. I was very careful at time of printing the Catalogue to admit no occasional species whose locality I had not investigated, and therefore I am satisfied that the species has been taken in Texas. As to Illinois the above extract speaks for itself.

These then are all the species of *Callidryas* thus far known to have been taken to the North of Mexico, *Eubule*, *Sennae*, *Agarithe* and *Philea*. As to *Cipris*, attributed in my "Synopsis" to New Mexico, that was a mistake on my part based on erroneous information, and I dismissed the species from the Catalogue, 1877.